

Amendments to the Claims:

This listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1(Currently amended):

A method of surface pretreatment before selective epitaxial growth process, comprising:

providing a semiconductor substrate having ~~metal-oxide-semiconductor devices each comprising a gate oxide layer thereon~~, a gate electrode on said gate oxide layer, a lightly doped drain region, a source region and a drain region therein;

forming an offset spacer around said gate oxide layer and said polysilicon gate electrode;

tilting and implanting said semiconductor substrate with a predetermined angle to form a pocket region on the interface of the lightly doped drain region and said semiconductor substrate;

performing a dry etching process with a carbon-free plasma source to remove a portion of said semiconductor substrate; and

performing a selective epitaxial growth process to form a semiconductor layer on said gate electrode, said source and drain regions for a salicide process.

Claim 2(Original):

The method of claim 1, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF₆) diluted with

ambient gas.

Claim 3(Original):

The method of claim 2, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF₆) diluted with ambient gas selected from a group consisting of helium, neon, argon, hydrogen and nitrogen.

Claim 4(Original):

The method of claim 2, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF₆) having a volume ratio between about 0.5% and 5% .

Claim 5(Original):

The method of claim 3, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF₆) having a volume ratio between about 0.5% and 5% .

Claim 6(Original):

The method of claim 4, wherein said dry etching process is performed at a pressure about 10 mtorr and a power between about 20 watts to about 500 watts, and an etching time within about 1 minutes.

Claim 7(Original):

The method of claim 5, wherein said dry etching process is performed at a pressure about 10 mtorr and a power between about 20 watts to about 500 watts, and an etching time within about 1 minutes.

Claim 8(Original):

The method of claim 1, wherein said dry etching process is performed to

remove said semiconductor substrate about 20-50 angstroms.

Claim 9(Original):

The method of claim 2, wherein said dry etching process is performed to remove said semiconductor substrate about 20-50 angstroms.

Claim 10(Original):

The method of claim 1, wherein further comprising a baking process performed with hydrogen ambient gas at a temperature less than 750°C prior to said selective epitaxial growth process.

Claim 11(Currently amended):

A method of forming a semiconductor device using selective epitaxial growth, comprising:

- providing a semiconductor substrate with a first conductivity;

- forming a plurality of isolation regions on said semiconductor substrate;

- sequentially forming a gate dielectric layer and a gate electrode on said semiconductor substrate between each pair of said isolation regions;

- forming a lightly doped drain region with a second conductivity opposite to said first conductivity in said semiconductor substrate between said gate electrode and each said isolation region;

- forming a first spacer around said gate dielectric layer and said gate electrode;

- forming a source/drain region with said second conductivity beside said lightly doped drain region in said semiconductor substrate;

- tilting and implanting said semiconductor substrate with a predetermined angle to form a pocket region with said first conductivity on the interface of said lightly doped drain region and said semiconductor substrate;

performing a dry etching process with a carbon-free plasma source to remove a portion of said semiconductor substrate;

performing a selective epitaxial growth process to form a semiconductor layer on said gate electrode, said source and drain regions;

forming a metal layer on said semiconductor layer; and

performing a salicide process to form a silicide layer on said gate electrode, said source and drain regions.

Claim 12(Original):

The method of claim 11, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF_6) diluted with ambient gas.

Claim 13(Original):

The method of claim 12, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF_6) diluted with ambient gas selected from a group consisting of helium, neon, argon, hydrogen and nitrogen.

Claim 14(Original):

The method of claim 12, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF_6) having a volume ratio between about 0.5% and 5% .

Claim 15(Original):

The method of claim 13, wherein said dry etching process is performed with a carbon-free plasma source containing hexafluorosulfur (SF_6) having a volume ratio between about 0.5% and 5% .

Claim 16(Original):

The method of claim 14, wherein said dry etching process is performed at a pressure about 10 mtorr and a power between about 20 watts to about 500 watts, and an etching time within about 1 minutes.

Claim 17(Original):

The method of claim 15, wherein said dry etching process is performed at a pressure about 10 mtorr and a power between about 20 watts to about 500 watts, and an etching time within about 1 minutes.

Claim 18(Original):

The method of claim 11, wherein further comprising a baking process performed with hydrogen ambient gas at a temperature less than 750°C prior to said selective epitaxial growth process.

Claim 19(Original):

The method of claim 11, wherein further comprising a step of forming a second spacer around said gate dielectric layer and said gate electrode prior to forming said first spacer.

Claim 20(Original):

The method of claim 11, wherein said metal layer is selected from a group consisting of Ti, Co, Ta, Ni, Pt and a compound thereof.